

New Vision 2030 Finance Plan

Background

CDTC included comprehensive, twenty-year budgets for 17 project categories in the original New Visions plan adopted in 1997. Street and highway repair costs and strategies were derived from extensive data collection, discussion and modeling through the Infrastructure Task Force, concluding with the task force report in 1995.

For the New Visions 2021 update, unit costs were adjusted based on project experience between 1997 and 2000. Cost increases were particularly noted for urban infrastructure projects due to the higher than expected costs of these projects. An error in the 1997 plan's budget totals (the omission of engineering phase costs) also led to higher overall budgets for highway work in the New Visions 2021 plan.

The New Visions 2025 plan contained highway rehab budgets unchanged from New Visions 2021 as a result of little detectable change in unit costs between 2000 and 2004.

Update Process

CDTC and its members have worked hard over many years to implement the New Visions plan. To a greater degree than typical for MPOs, CDTC has linked the plan to implementation. Progress has been and continue to be made across all project categories. Continued dialogue and discussion of transportation and land use policy has reaffirmed the basic New Visions plan and budgetary priorities. New Visions program recommendations ranging from a spot improvement program to significant funding for integrated transportation and land use planning have been successfully instituted by CDTC. As a result, it is not necessary for CDTC to reinvent its budgetary approach. Rather, the focus in the New Visions 2030 finance plan work is on adjustments of budgets for the individual elements and a comparison of those funding requirements with reasonably anticipated revenues.

Discussion in recent years on "big idea and big ticket" initiatives has confirmed that implementation of regional greenway systems, fixed guideway transit systems, broad-scale construction of new "managed" expressway lanes and the like cannot fit into the financially constrained long range plan at present. Potential budgets for these initiatives are described in separate documents (<http://www.cdtcmpo.org/rtp2030/c-bigideas2.pdf>), but are not part of the official New Visions finance plan. Funding for these major undertakings would need to be identified above and beyond the amounts needed to cover existing commitments before they could be considered for official status.

The budgetary update process involved three primary steps: (1) bringing unit costs up to a 2006-2007 base level; (2) accommodating the contents of project commitments in some project categories; and (3) adjusting estimates of existing and future anticipated financial revenues. By far, the more rapid growth in unit costs than in revenues has been the biggest issue reviewed by the working group. A key assumption in the construction of the financially-constrained plan is the assumption that it is *not* reasonable to anticipate that revenues will continue to be out-of-whack with the basic-system-maintenance-with occasional-improvements game plan represented by New Visions. As documented in CDTC's comparative analysis of MPO plans across the country (<http://www.cdtcmpo.org/rtp2030/c-budgets.pdf>) , CDTC's New Visions plan is the most conservative of all those examined with regard to system expansion. The working group asserts that it is *unreasonable* to anticipate that a region that continues to maintain economic health and growth (as projected in baseline forecasts) will at the same time *fall further and further behind in its already-modest commitments*.

The process used to update budgets varied by category. The resulting budgets are found in Table 1. Budgets are shown for each of the seventeen funding elements or project categories in the New Visions plan.

An overview of the update process for each is as follows, by program.

1. **Intermodal facilities:** Updated values reflect elements of the NYS High Speed Rail Task Force near-term plan; Amtrak station / intercity bus reconstruction and repair costs for Albany-Rensselaer, Saratoga Springs and Schenectady; port of Albany master plan implementation; Albany International Airport master plan implementation; and Adirondack CP track upgrades. Overall, the intermodal budget is comparable to that of the previous plan.
2. **Transit infrastructure:** Updated values are derived from CDTA's Transit Development Plan, five-year capital plan and fleet replacement schedule and the NY5 Bus Rapid Transit plan. The budget will provide for urban, STAR, commuter and Saratoga Springs vehicles, garages and maintenance facilities and continuous deployment of BRT systems. The transit infrastructure budget is 38% higher than the previous budget.
3. **Transit service:** The New Visions plan continues to call for modest expansion of transit services (unless or until one of the "big idea" initiatives is desirable and feasible). New funding values are approximately 5% above current funding and 50% higher than the previous budget.
4. **ITS (Technology) and Traffic Infrastructure:** Working Group B examined ITS needs for the expressway system and suggested maintaining an ongoing investment at current levels.
5. **ITS (Technology) and Transit Operations:** Recognizing the importance of improved regional operations and traveler information systems, the new value is approximately double that of the previous value.
6. **Highway Rehab, Reconstruction and Redesign on the Priority Network:** CDTC performed detailed modeling on this program area. Additionally, the new values incorporate Working Group B's product recommending explicit reconstruction on the expressway system over the next thirty years. The financially constrained plan assumes resources sufficient to do routine repairs sufficient to maintain overall pavement

condition on the priority system and achieve 1997 goals (originally for 2015) by 2030. Annual budget values increase by 76% over previous values to recapture lost conditions and partially address the need to reconstruct expressway pavement. Even at the increased funding levels, over half of the expressway system will be over 50 years of age without ever being reconstructed.

7. **Highway Rehab, Reconstruction and Redesign off the Priority Network:** Values for the 2030 plan are obtained from modeling. New values are approximately 38% higher than previous values.
8. **Bridge Rehab & Reconstruction:** Detailed modeling by NYSDOT Region 1 on the Interstate system and remainder of the state system provided a base estimate for bridge capital work. Estimates continue to include (updated) costs for Patroon Island, Batchellerville and other major bridges. Non-state costs were updated based on the new state system costs. In aggregate, the new bridge capital values are 9% higher than previous values.
9. **Highway and Bridge Maintenance:** The cost for maintaining 1995 base level activities has increased an estimated 25% due primarily to labor costs.
10. **Strategic Highway and Bridge Actions – CMS-based (capacity):** Individual project cost estimates are updated in the new values as are block funds for future congestion management system initiatives. The new values total less than \$9M annually, down 14% from previous levels.
11. **Strategic Highway and Bridge Actions – economic development and community compatibility.** Individual project cost estimates are updated in the new values as are block funds for future economic development / community compatibility initiatives. In CDTC's conservative long-range plan, the new values total \$12 M annually for economic and community initiatives – even combined with CMS actions still a fraction of the system expansion expectations of other MPOs and well within reasonable expectations for funding. The new values are 41% higher than previous values.
12. **Supplemental Goods Movement Actions.** Previous values are increased by 40% to reflect increases in unit costs for construction.
13. **Supplemental Bike & Pedestrian Actions.** Previous values are increased by 40% to reflect increases in unit costs for construction.
14. **Supplemental Access Management Actions.** Previous values are increased by 40% to reflect increases in unit costs for construction.
15. **Supplemental Safety Actions.** Previous values are increased by 40% to reflect increases in unit costs for construction.
16. **Demand Management.** Previous values are increased by 25% to reflect increases in labor costs.
17. **Integrated Planning & Outreach.** Previous values are increased by 25% to reflect increases in labor costs.

New Visions 2030 Finance Plan
Regional Transportation Plan Budget by Element

			<i>previous</i>	<i>new</i>	
		Current Investment Levels	New Visions 2025 Full Implement ation	New Visions 2030 Full Implement ation	Update Approach
REGIONAL PROGRAMS¹					
1	Intermodal Facilities	31.900	41.095	41.600	new estimate
2	Transit Infrastructure	12.000	11.491	16.807	new estimate
3	Transit Service	60.000	41.860	63.000	inflate @ 50%
4	ITS (Technology) and Traffic Infrastructure	6.300	12.790	15.250	derived from WG B, TIP discussions
5	ITS (Technology) and Traffic Operations				
6	Highway Rehab, Reconstruction and Redesign -- Priority Network	55.000	87.805	148.500	new estimate from models and WG B discussions
7	Highway Rehabilitation & Reconstruction – Other	12.500	15.250	20.730	
8	Bridge Rehab & Reconstruction	55.100	82.100	89.100	new estimate from models
9	Highway and Bridge Maintenance	191.000	174.300	217.875	inflate @ 25%
10	Strategic Highway and Bridge Actions - - CMS-based (capacity)	17.400	10.277	8.939	updated projects, adjusted balance ²
11	Strategic Highway and Bridge Actions – Economic Development /Community Compatibility	9.500	8.712	12.286	
12	Supplemental Goods Movement Accommodations	14.800	3.665	5.130	inflate @ 40%
13	Supplemental Bike & Pedestrian Accommodations		2.618	3.670	inflate @ 40%
14	Supplemental Access Management Actions		0.500	0.700	inflate @ 40%
15	Supplemental Safety Actions		3.800	5.300	inflate @ 40%
16	Demand Management	0.500	1.600	2.000	inflate @ 25%
17	Integrated Planning & Outreach	2.600	3.610	4.500	inflate @ 25%
SUBTOTAL		468.600	501.473	655.387	

¹ All values are in millions of 2007\$, annually over 25 years, 2006-2030.

² Note that \$260 M of the 25-year budget of \$610 M in these two programs is assigned to “major projects” on the current TIP. Additionally, the cost of the I-90 Phase 2 connector is estimated at over \$100 M. If funded from the budget in this table, only 40% of the 25-year budget would remain for new capacity, economic development and community compatibility projects.

Conclusions

While the budget update has focused primarily on cost adjustments for some plan elements, there are specific conclusions for others, such as pavement, bridge and transit.

The following conclusions are reflected in the New Visions 2030 financial plan and committed strategies and actions.

Pavement

1. Pavement conditions on the Interstate system are improved from the conditions of 1994. However, the ages of these highways are now between 30 and 50 years and there have been few full reconstruction projects on these facilities. Without intervention, in another twenty-five years, the system would be 55 to 75 years of age.
2. Pavement conditions on non-Interstate arterials and collectors have declined from 1994 conditions on both the state and non-state systems.³ The condition of state arterials on the National Highway System is now more similar to conditions on locally-owned arterials than to conditions on the Interstate system. In real terms, the annual cost of achieving CDTC's modest condition goals on these roads over the next 20 years has increased 10% simply because of the lost ground over the last decade. Again, reconstruction of these roads is rare and falls far short of CDTC's previous expectations of reconstructing about half of the non-state federal-aid roads in the region over a 20-to-30-year horizon.
3. Pavement conditions on non-federal-aid roads (70% of the total lane miles in the four counties) have also declined, with the total percentage rated fair or poor increasing from 31% in 1992 to 50% in 2004. In real terms, the annual cost of achieving condition goals on these roads over the next 20 years has increased over 20% because of lost ground. (The absolute cost of the needed work on these roads is small, relative to federal-aid system needs.)
4. The unit cost of infrastructure work has increased faster than the average rate of inflation in recent years. This compounds the effect of increased scopes of highway rehabilitation projects, resulting in an estimated 75% to 100% increase in the price per lane mile of highway projects since adoption of the New Visions in 1997. It may be that the primary cause of declining overall conditions on all systems except the Interstate system is inflation, effectively reducing the amount of work performed below intended levels.
5. Federal, state and local funding has not kept pace with the increase in per mile project costs. While the New Visions plans in 1997, 2000 and 2004 each asserted that long-range goal

³ Surprisingly, 2003 pavement conditions on the state system were the best of any in the previous two decades; between 2003 and 2005 the percentage rated fair nearly doubled. Similarly, locally-owned federal roads reached their best overall conditions in 2001, only to see the total percentage rated fair or poor reach a ten-year high by 2005.

attainment for pavement conditions was feasible within reasonably anticipated revenues⁴, recent inflation and budget actions put the current situation shy of long-range goal attainment. Inflation alone has added \$35 M in annual funding requirements for pavement rehabilitation work since the 2000 estimates; additional funding generated in recent years from SAFETEA-LU and the NYS Bond act falls short of that. However, CDTC's long-established condition goals are inarguably modest and are far more conservative than those reflected in national "needs" studies. It would be unreasonable to lower these already-modest goals or to anticipate that funding will permanently remain at levels insufficient to achieve these modest goals.

6. Further, while the condition models appears to indicate that NYSDOT and local governments could continue indefinitely the current repair programs focusing nearly exclusively on resurfacing and rehabilitation, an intentional effort to reconstruct aging facilities at least at a modest pace and at least on the Interstate system appears to be unavoidable. Leaving future generations with an extensive highway system that has suffered from intentional disinvestment is unconscionable. Pursuing a strategy of some reconstructions, even if limited to the Interstate system would require at least \$10 M in additional funds annually (to accomplish up to 50% reconstruction over 20 years, based on modeled conditions) and as much as \$32 M in additional funds annually (to implement the segment-by-segment expressway rehab plan produced by Working Group B). The lower (\$10 M) value is included in the basic budget for the New Visions 2030 plan and would leave the expressway system with an average age greater than 40 years.

Bridge

1. Interstate system bridge needs are substantial. Overall, they are estimated to require about one-half of the total bridge budget over the next 25 years. Included in this set of needs is reconstruction or replacement of the I-90 Patroon Island bridge, I-787 viaduct structures, the I-87 Mohawk River crossing and others. NYSDOT Region 1 estimates a need of over \$500 M for Interstate work in the coming 12 years alone.

2. While non-Interstate bridge conditions are improved over those from a decade ago, current funding is short by about one-half of the amount needed to achieve the modest bridge condition goals of having no more than 20% of all bridges in the deficient category. At current funding, the number of bridges rated deficient by 2018 alone will range from 24% (Thruway) to over 50% (NYSDOT owned Interstate bridges). 2030 conditions at current funding would be unacceptable. Funding sufficient to achieve the modest 20% goal is incorporated into the basic financial plan for New Visions 2030.

Public Transportation

1. CDTA has successfully pursued the New Visions recommendations from the 1995 Transit Futures Report, partnering with CDTC, NYSDOT and local governments on Bus Rapid Transit while using the Transit Development Plan effort to restructure basic services. While

⁴ Reasonably anticipated revenues were estimated at maintaining current funding levels (in real terms, adjusted for inflation) plus resource growth of about 1% per year.

CDTC desires to expand access to alternative modes, the basic budget for New Visions 2030 assumes resources only for modest levels of service increase – steady deployment of BRT and redeployment of other services; increased use of alternative fuel vehicles; greater coordination between land development and transit service; and improved customer services, information and amenities.

2. CDTA’s recently-adopted continuous fleet replacement cycle carries a modest financial increase in the near future, higher than current funding levels but well within the range of reasonable funding expectations over the future. As with other program areas, CDTC’s goals for public transportation are modest, with transit operations demanding less than 10% of the total public cost of the region’s transportation budget (\$63 M of \$654 M annually) and transit infrastructure requiring scarcely 2% more. Bigger budget transit infrastructure initiatives including fixed guideway (rail, busway, etc.) and quantum increases in transit service remain outside the range of reasonably anticipated revenues. The “big idea” initiative discussions would need to lead to a change in the financial landscape for these to be incorporated into the plan.

Congestion Management and Community Compatibility / Economic Development Actions

1. Implementation of the set of “major projects” first described in the 1992-97 TIP is taking considerably longer than the ten years timeframe estimated at that time, but several projects on the list have been implemented (Albany Shaker Road, Slingerlands Bypass, Watervliet Shaker Rd. Costs for the remainder of the committed congestion relief and other projects in these two budget categories have increased substantially since the last plan update. NYSDOT Region 1 is carrying a price tag of over \$100 M for the I-90 Exit 8 Phase 2 Connector in Rensselaer County (if “demo” funds are provided), and the Exit 3 / Exit 4 Airport Access Connector project on I-87 is conservatively estimated at over \$40 M. Some adjustment of scopes or further adjustments to schedules may be required.

2. A 25-year budget for discretionary projects such as these is also intentionally modest, with reasonably anticipated revenues dipping somewhat on an annual level from levels in the current TIP. Over the period through 2030, congestion management, community compatibility and economic development actions are budgeted at only 3% of the total system budget. While the 25-year budget exceeds \$600 M for these categories, this level of system expansion is extremely limited. Many metropolitan areas are routinely grappling with individual projects exceeding the billion dollar budget level.

Reasonably Anticipated Revenues

CDTC’s regional plan must be fiscally constrained. That is, CDTC may not identify actions or projects as “committed” if it is not reasonable to anticipate that revenues will be available to advance the actions or projects at the intended time. If the necessary revenues are not already available in current funding streams, CDTC must document the compelling logic regarding how and why these revenues can be reasonably anticipated in the future.

The New Visions financial plan is fiscally constrained on the same basis as have been previous New Visions plans.

1. The New Visions 2030 plan requires only that, over time, fiscal resources keep pace with inflation and travel growth. This is the modest and reasonable assumption established in the original New Visions plan in 1997 and remains the backbone of the financial plan for New Visions 2030. While the 2030 effort has demonstrated that funding currently is falling short of that rate of growth, it is unreasonable to conclude that there will be a permanent shortfall leading to continuous and dramatic declines in system condition and performance. History has proven that funding support for vital transportation infrastructure is cyclical and that the public does not tolerate system declines indefinitely. The financial estimates assume only that long-term patterns of funding prevail, even if the specific fund sources (gasoline tax, user fees, tolls, leasing of facilities) changes over time.

2. The budget commitments in the New Visions 2030 plan are modest and conservative. In accord with adopted principles, emphasis is placed on system management and operations, coordinated land use and transportation planning, system preservation and re-investment and safety and air quality initiatives. Discretionary system expansion budgets are modest, but necessary. It would be unreasonable to assume that there will be no road widening, modest street connections or new transit routes over the next 30 years.

3. The budget maintains CDTC's "steady progress" principle. That is, until funding levels match in real dollars the New Visions budget levels, funding commitments can be made to individual projects across all project types but at a slower pace of implementation than in the financial plan. CDTC will continue to seek bike and pedestrian accommodations, intermodal improvements, transit service improvements, new system operations initiatives and the like along with system preservation projects even while working with its partners to secure the necessary funding for full implementation. It will not be possible to achieve long-term system objectives across all subject areas without making steady progress (at a pace affordable by current funding) in all subject areas over the next 30 years.

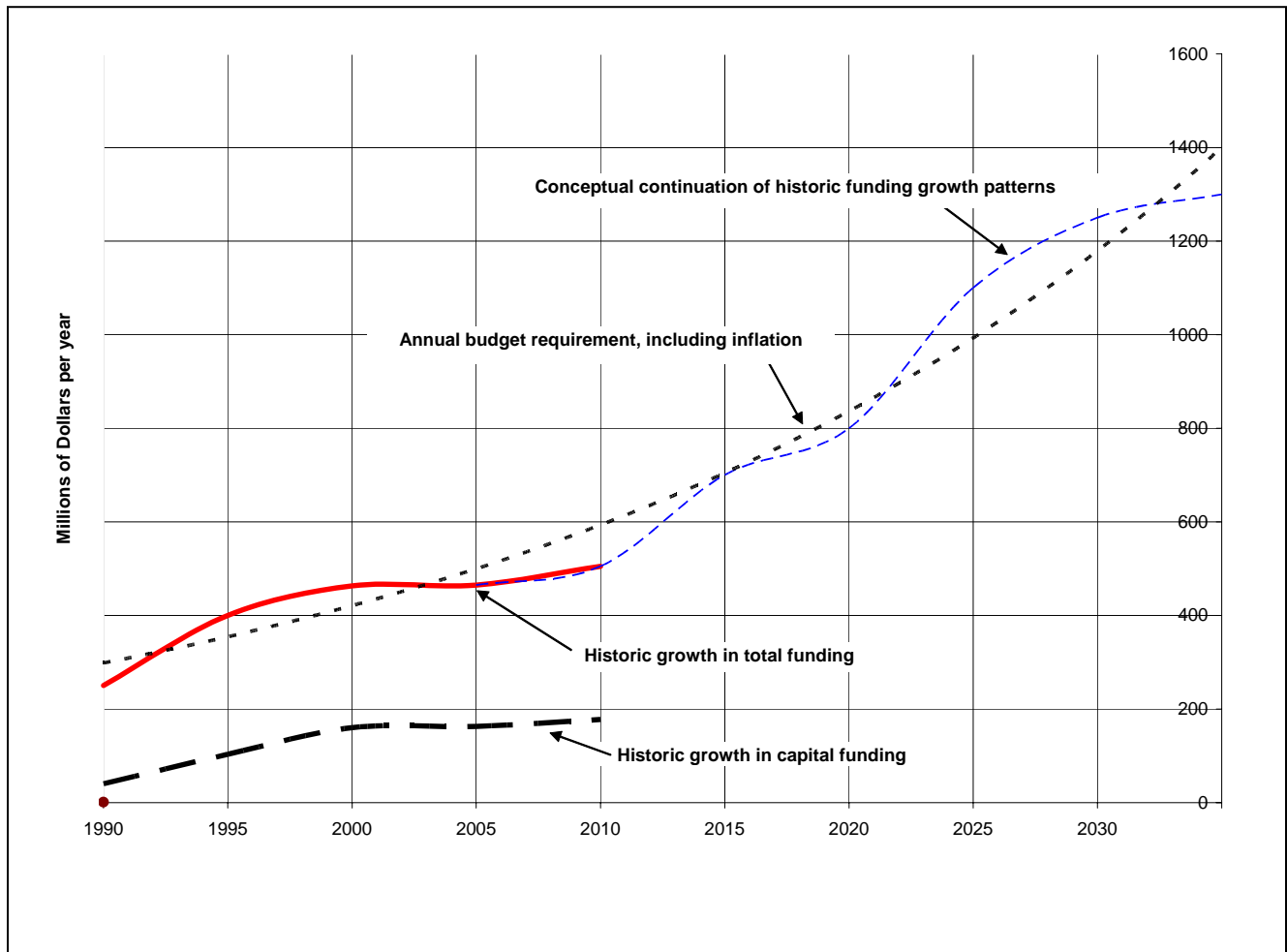
4. Unlike most MPOs, CDTC does not identify a specific *project* as committed unless and until real resources are identified and programmed to that project. For example, it is CDTC's practice to not list "hoped for" demo or earmark funds with the financial information for projects on the TIP. These funds are programmed only when real. Similarly, CDTC does not show specific highway or transit projects in the New Visions plan unless they have been programmed. The distinction is real and assures fiscal constraint of the plan.

Financial Initiatives

While it is reasonable to anticipate that funding will be available over coming decades to carry out all elements of the New Visions plan, **it is imperative that CDTC and its members work with all interested parties at the federal, state and local level to explore prudent and timely actions to secure these funds.** Discussion of "big ticket initiatives" must occur simultaneously with discussion of budget gaps for the basics. It may be necessary to link the "urgent" with the "desired" to elicit sufficient public support for legislative action to provide the necessary resources.

The chart below represents this long-term perspective on the ups and downs of transportation financing.

Long-Term Transportation Funding in the Capital District



As part of the historic growth in funding, note that CDTC's five-year 1989-1994 TIP averaged only about \$40 M annually in state and federal-aid projects (urban and rural, highway transit), including match. The draft 2007-12 TIP averages nearly **\$140 M** annually for the same fund sources. Over time, there has been and can be expected to be some shifts among the sources of funds (user fees vs. bonds, state vs. federal, toll vs. other). Funding for maintenance and very modest system expansion requires conscious effort but can be reasonably anticipated based on this history; funding for major ("big ticket") initiatives cannot be reasonably anticipated at the present time.

APPENDIX A

HIGHWAY REHABILITATION AND RECONSTRUCTION BUDGET UPDATE METHODOLOGY AND RESULTS

Detailed Approach

Several sources are used to update the values for a New Visions 2030 budget: (1) NYSDOT's annual pavement condition information for state touring routes through 2005; (2) CDTC's biennial pavement condition information for other federal aid roads through 2003; (3) CDTC's quadrennial pavement condition information for non federal aid roads through 2004; (4) CDTC's long-range Highway Condition Prediction Model (HCPM) using intended repair strategies and unit costs for various classes of streets and highways calibrated in 1995; (5) Detailed rehab and reconstruction plans by highway segment for all expressways in the region for the period through 2035 (from the Working Group B report); and (6) Federal Highway Administration and Bureau of Labor Statistics price indices for highway and street construction.

The process involves several steps:

1. Identifying appropriate unit cost adjustments to reflect inflation through 2006.
2. Incorporating the latest pavement condition information into the CDTC model.
3. Running the model for various classes of highways
4. Integrating the results with those from Working Group B or otherwise reconciling the differences.

Identifying appropriate unit cost adjustments

Unit cost adjustments are based on the following assumptions:

1. CDTC had decent cost estimates in 1995 for various repair types.
2. CDTC updated some of these estimates in 2000 based on TIP experience with major projects, and corrected the estimates to include PE and other phases mistakenly left out of the New Visions budget totals.
3. The New Visions 2021 values can be considered 1999 unit costs, based on our development of the budget in 2000.
4. CDTC can use NYS and/or federal price trend indices to update the unit costs from 1999 values to a 2005 base.
5. The federal index is smoother than the state index and is a better base for estimating long term trends.
6. CDTC can further update the values to an approximate 2006 base by applying the Bureau of Labor Statistics highway materials cost index change of 12.6% from

December 2005 to December 2006. While this is not exactly the same as the FHWA indices (which are not yet available through the end of 2005), it confirms NYSDOT approximation of a "10-20%" increase in bid prices in 2006 over 2005 (as provided to Fred Howard).

The FHWA's moving price index is published in a quarterly document, "Price Trends for Federal-Aid Highway Construction". A composite index is based upon a standard market basket of excavation, concrete surfacing, bituminous surfacing, steel and structural concrete, using 1987 as the base. (1987=100.) Reviewing this information, it appears that the national composite index is a more reliable value than the New York value (which swings a lot from year to year). Using the national composite index of 137.2 for 1999, the first quarter 2005 value of 171.8 and a 12.6% increase from December 2004 to December 2005 **provides a 35 to 40 % inflation value for 2006 estimates over the 2000 estimates** in the New Visions 2021 plan's budgets.⁵ Note that the New Visions 2021 budgets included a 40% scope adjustment factor for Interstate work to reflect new design standards (obstruction-free runoff zones, etc.).⁶

Incorporating the latest pavement condition information into the CDTC model.

Pavement condition ratings are available from NYSDOT for state-owned and locally-owned state touring routes, annually through 2005. Scores are available for the balance of the non-state federal aid system on a biennial basis through 2005. An estimated set of scores for the non-federal-aid system is available on a quadrennial basis through 2004 (although these have not yet been compiled for use here).

Long-term trends for the state touring route system in the eight-county Region One have been positive, with the percent of lane miles in poor condition dropping from a high of 35% in 1987 to a low of 8% in 2003. However, 2005 saw a spike in the percent of lane miles in fair condition, rising from about 23% in 2003 to nearly 45% in 2005. **Despite steady improvement in conditions from 1985 to 2003, the total lane miles of state routes in fair or poor condition in 2005 (54%) is now higher than any time in the last twenty years.**

In the four-county Capital District, only the Interstate System is in overall better physical shape in 2005 than in the 1994 base year of the New Visions budget, with conditions improving from 5% poor, 24% fair in 1994 to 0% poor, 10% fair in 2005.

⁵ Interestingly, this large of an increase is possibly consistent with CDTC's contention in the New Visions 2025 document that "no noticeable adjustment in unit costs" was necessary to the New Visions 2021 budgets, because unit costs for the 2001-06 TIP update appeared valid in the 2003-08 TIP update. The New York composite price index was: 1997 133.84; 1998 124.76; 1999 90.83; 2000 134.90 2001 124.13 2002 48.27; 2003 122.29; 2004 138.52. With such a wild swing, it is not unreasonable for CDTC to have assumed there was no clear trend in unit costs between 1997 and 2003, allowing it to limit changes to the budget for highway rehab costs to an awareness of bigger scopes for major projects and to corrections for phases omitted. The national trend represents more accurately the true background movement of costs, being calculated from a much larger base of project bids.

⁶ The Working Group B's "Expressway Options" report includes unit cost construction estimates of \$1.750 M per lane mile for reconstruction, \$0.600 M per lane mile for major rehab. These values are roughly double those used in CDTC's 1994-based Infrastructure model. The 40% cost increase for scope/cost updates from 1994 to 1999 combined with a 40% inflationary cost increase from 1999 to 2006 produces a comparable doubling of unit costs.

For the non-state federal-aid system, pavement conditions have remained in a “trading range” between 1985 and 2005, with the percent of lane miles in poor condition ranging from 13% to 22% and the percent fair ranging from 18% to 32%. **While showing no noticeable trends over the last two decades, the total number of lane miles of non-state federal aid roads in fair or poor condition in 2005 (47%) is also as high as any time in the last twenty years.**

The condition of other local roads also declined over the past decade. From CDTC’s quadrennial sample of the 9,400+ lane miles of non-federal-aid roads, CDTC estimates that **the percentage rated fair or poor increased from 31% in 1992 to 50% in 2004.**

Condition of Capital District City-Owned Federal-Aid Roads

The 2003 non-state federal-aid road data is the data currently used by CDTC for detailed analysis while it converts its data to a GIS database. The data reveals a significant difference between city-owned roads and other urban roads. CDTC staff is bringing this to the Finance Task Force for their awareness and possible discussion. Note that the “All Roads” category includes all other roads in the table. They also don’t agree with the 2005 data because road conditions might have changed and the system of non-state federal-aid roads was updated to include some roads that were left off the 2003 system.

2003 Conditions by Selected Road Type

Type of Road	% Poor	% Fair	% Fair & Poor	Avg. Score	Miles
Rural	15	15	30	6.9	167
Urban (Non-City)	9	18	27	7.0	718
City	27	23	50	6.3	622
All Roads	17	20	37	6.7	1508

Running the model for various classes of highways against adopted goals

In the original New Visions Infrastructure Task Force work, a detailed, long-range model of repair practices was used for five groups of roadways: Interstate roads; non-Interstate NHS roads; non-NHS principal arterials; other federal-aid roads; and local (non-federal-aid) roads. Separate policy goals for the maximum acceptable percent poor and percent fair lane miles were established and included in the New Visions plan.

For purposes of comparison, non-NHS principal arterials were combined with other state federal-aid roads. Other non-state federal-aid roads were run separately.

The 1994 base, 2005 base and long-range goals for each of the groups are shown below. (Goals for some groups are a combination of goals for subgroups):

Pavement Conditions and Existing New Visions Long-Range Pavement Goals

Highway Group	Lane Miles	1994		2005		Goals	
		Pct Poor	Pct Fair	Pct Poor	Pct Fair	Pct Poor	Pct Fair
Interstate	532	5	24	0	10	0	20
Non-Interstate NHS	322	12	22	6	39	5	20
Other Federal-Aid (State)	1810	16	23	13	44	14	20
Other Federal-Aid (non-State)	1321	17	20	19	28	14	20
Local	9442	9	22	23	27	15	20

As noted earlier, only the Interstate system is in better surface condition in 2005 than in 1994.⁷

The improved condition of the Interstate system mitigates the higher percentage increase in annual average costs required to achieve the goals on the other systems – if maintaining pavement condition is the over-riding goal (as opposed to making an inroad into a “backlog” of warranted reconstructions). Working Group B’s products shed light on the reconstruction needs.

For the non-Interstate state roads, the combined budgetary increase caused by the poorer conditions in 2005 than 1994 is about 17%.

Integrating the results with those from Working Group B

New Visions 2030 Working Group B produced a report, “Expressway System Options” in August 2005. As part of that extensive effort, NYSDOT Region 1 generated a segment-by-segment, cost-unconstrained pavement rehab plan for the entire non-Thruway expressway system. (This group of roads is similar to, but not identical to, the Interstate system in the data shown above.)

The results are shown as “Table 4” from the report and total \$1.077 B (construction costs only) over a 30-year period, averaging \$44.9 M per year in the period 2006-2030 after including 25% for other project phases. This budget would result in reconstruction of over 75% of all expressway lane miles at some point between 1995 and 2035 as well as regular mill and fill, minor rehab and major rehab treatments.

⁷ The poorer conditions in 2005 than 2004 are consistent with the CDTC infrastructure model. In 1994, CDTC ran a scenario of higher vmt and a 20% reduction in real dollar funding. The net result was an increase in the total of fair and poor roads – approximately in the same range as 2005 scores indicate. It is plausible that the net effect of increased state and federal funding (in nominal dollars) and higher scopes and higher unit costs was, in fact, close to a 20% funding reduction. If so, the past decade has confirmed the validity of the infrastructure model.

TABLE 4
Expressway Rehabilitation Cost for the Capital Region (millions)

SEGMENT DESCRIPTION	BUILT	LANE MI.	RAMP MI.	TOT. LN. MI.	COMPLETED WORK		1 ('04-'05)		2 ('06-'10)		3 ('11-'15)		4 ('16-'20)		5 ('21-'25)		6 ('26-'30)		7 ('31-'35)		TOTAL Cost 2005-2035
					TREAT MENT	YEAR	TREAT MENT	COST	TREAT MENT	COST	TREAT MENT	COST	TREAT MENT	COST	TREAT MENT	COST	TREAT MENT	COST	TREAT MENT	COST	
I-87 to I-787 Overlap	1965	20.42	3.73	24.1	CPR	2003					Minor Rehab.	\$4.8					Major Rehab.	\$14.5			\$19.3
I-90 to US 4	1995	5.08		5.1					Minor Rehab.	\$1.0							Major Rehab.	\$3.0			\$4.1
Thruway Underpass to I-90	1962	10.26	2.96	13.2					Recon-struct	\$23.1					Mill & Fill	\$1.5			Minor Rehab.	\$2.6	\$27.2
Western Ave to Saratoga Co	1959	54.50	14.51	69.0	Major Rehab.	1998	Mill & Fill	\$7.6			Recon-struct	\$120.6					Mill & Fill	\$7.6			\$128.4
Saratoga Co to Exit 12	1959	76.74	5.98	82.7	Rehab.	2001							Recon-struct	\$144.8					Mill & Fill	\$9.1	\$153.9
Exit 12 to Warren Co.	1959	57.90	7.21	65.1	Major Rehab.	1991	Mill & Fill	\$7.2			Recon-struct	\$113.9							Minor Rehab.	\$13.0	\$126.9
Schoharie Co to I-90	1980	73.04	2.08	75.1	CPR	2003							Minor Rehab.	\$15.0					Major Rehab.	\$45.1	\$60.1
Thruway Exit 24 Toll to Rensselaer	1965	41.96	16.88	58.8					Major Rehab.	\$35.3					Recon-struct	\$103.0					\$138.3
Rensselaer Co. to Exit 10.5	1970	42.96	5.51	48.5	Rehab.	1998					Minor Rehab.	\$9.7			Recon-struct	\$84.8					\$94.5
Exit 10.5 to Thruway Exit B1	1974	29.48	4.35	33.8	Rehab.	1991			Major Rehab.	\$20.3					Minor Rehab.	\$6.8			Minor Rehab.	\$6.8	\$33.8
NY 377 to Menands Bridge	1952	9.65	1.58	11.2					Major Rehab.	\$6.7							Minor Rehab.	\$2.2			\$9.0
Thruway Exit 23 to NY 5 Underpass	1966	11.17	3.55	14.7					Major Rehab.	\$8.8					Recon-struct	\$25.8					\$34.6
NY 5 Underpass to W'vlet South C	1970	31.30	9.82	41.1	Rehab.	1992			Minor Rehab.	\$8.2					Recon-struct	\$72.0					\$80.2
W'vlet South City Line to 8th Street	1972	17.90	3.24	21.1	Rehab.	2003					Mill & Fill	\$2.3			Recon-struct	\$37.0					\$39.3
Thruway Exit 25 Toll to NY 337	1962	31.19	7.48	38.7							Minor Rehab.	\$7.7			Recon-struct	\$67.7					\$75.4
NY 337 to Thruway Exit 26 Toll & N	1967	15.59	5.10	20.7					Major Rehab.	\$12.4					Minor Rehab.	\$4.1			Recon-struct	\$36.2	\$52.8
TOTAL		529.14	93.97	623.1				\$14.8		\$115.9		\$259.3		\$159.8		\$402.7		\$27.4		\$112.8	\$1,077.9

These Expressway Report values compare with others as follows:

		Ann. Ln-Mi Reconstr.	Annual Cost
1.	Actual TIP budget (2003-10) per year Interstate expenses	1.4	\$14.4 M
2.	Infrastructure Model (1994 base) annual Interstate needs estimate	4.0	16.5 M
3.	Infrastructure Model (2005 base) annual Interstate needs estimate	0.0	12.5 M
4.	Infrastructure Model (2005 base with 50% reconstructions)	12.8	22.1 M
5.	Expressway Report unconstrained (2006-2030) per year estimate	18.1	44.9 M

The difference in annual cost estimates is largely attributable to assumptions about when and where full-depth reconstructions and other major work are triggered. The actual TIP budget reflects reconstruction of only 10 miles over seven years (I-890), or 1.4 lane-miles per year. A similar, cost-constrained repair strategy was reflected in the 1994 base model run (four miles of reconstruction per year); starting with better conditions, the 2005 base model run requires even fewer reconstructions to maintain pavement surface conditions at long-range goals.

The difficulty is that, while it is possible to maintain overall surface conditions with the repair policy in the model, the age of the roads steadily increases to 40, 50, 60, 70 or 80 years. Allowing the Infrastructure model to reconstruct segments 40% of the time when repairs are called for (instead of waiting until a condition of 4) results in reconstruction of about half the lane-miles on the Interstate system over 21 years. This still leaves a sizeable number of 50-year old pavement while increasing the budget requirements about 50% over current TIP levels.

The Expressway report's plan leaves very few 50-year-old roads, but requires roughly double the budget estimated in the 50% reconstruction model run – about triple the annual investment level shown in the TIP.

The same policy question regarding reconstructions pertains to other federal-aid roads, as well. The Infrastructure model's modest cost increase (in real terms) due to the difference between 1994 and 2005 pavement conditions would be exaggerated significantly if sizeable numbers of road segments were to be reconstructed over the next 20 to 30 years.

The New Visions expectation that roughly 500 lane-miles of these roads would be reconstructed to "state standards" over 20 years is not being borne out by experience. Despite access to federal funds through CDTC, local reconstruction efforts are advancing at no better annual pace than state reconstructions. The combination of scope increases, inflationary increases and long project development times have resulted in few miles reconstructed to modern standards per year.

The various pieces of information provide the basis for updating the major portion of New Visions 2025 highway preservation and rehab budget. The preliminary “full implementation budget” for the priority network for the draft New Visions 2030 plan would be developed from the following information:

Full Implementation Budget, New Visions 2021/2025	\$80.0 M/yr (1999 \$)
Goal-oriented, model-based budget, New Visions 2030	\$115.8 M/yr (2006\$)
<i>Expressway plan-inclusive</i> budget, New Visions 2030	\$148.2 M/yr (2006\$)

The 2006 values reflect a 40% unit cost difference between 1999 and 2006. The expressway plan-inclusive budget substitutes the Working Group B expressway rehab plan for the model’s goal-based outcome.

Budget Results for the New Visions 2030 Plan

The budgets for highway rehabilitation and reconstruction for New Visions 2030 are as follows:

Priority Network Highway Rehabilitation, Reconstruction and Redesign Budget (Average cost per year, 2006-2027)

	System Preservation	Full Implementation
State and Local	\$63.000 M	\$121.800 M to \$148.200 M
NYS Thruway/Canal System	\$10.500 M	\$ 16.700 m
New Visions 2030 Total	\$73.500 M	\$138.500 M to \$164.900 M. (Use \$148.500 M)
Previous New Visions Total	\$55.960 M	\$87.805 M

System preservation estimates are taken from the model runs, updated to reflect 2005 conditions, and include a 40% adjustment in unit prices from the unit prices used in the previous New Visions estimates. These are the annual average costs of maintaining roughly the 2005 conditions for 21 years, with no significant further decline or improvement.

Full implementation budget ranges between the model output (with minimal reconstruction) and the model output with the Working Group B’s Expressway Options report plan substituting for the model’s estimates for the Interstate system. The \$148.5 M annual value represents a mid-range program in which only a portion of the Working Group B reconstruction plan can be reasonably anticipated to fit within financial constraints. This would allow approximately half of

the expressway system to be reconstructed over the next 25 years, still leaving the average age of the system around 40 years.⁸

System preservation estimates for the Thruway system are from the New Visions 2021 report, inflated by 40%. Thruway system full implementation estimates are from Working Group B's Expressway Options report.

New Visions Table 1: Non-Priority Network Highway Rehabilitation and Reconstruction Budget

(Average cost per year, 2006-2027)

	System Preservation	Full Implementation
New Visions 2030 Total	\$17.240 M	\$20.730 M
Previous New Visions Total	\$15.000 M	\$15.250 M

System preservation estimates are taken from the model runs, updated to reflect 2005 conditions, and include a 40% adjustment in unit prices from the unit prices used in the previous New Visions estimates. These are the annual average costs of maintaining roughly the 2005 conditions for 21 years, with no significant further decline or improvement.

Full implementation estimates are taken from model runs, with repairs sufficient to achieve system goals over 21 years, and include a 40% adjustment in unit prices. The \$0.250 M annual supplemental expense for addressing ADA/aging goals of New Visions is also inflated by 40% in the full implementation budget.

Average values for 2006-2027 were used for annual average values for the 2006-2030 period of the New Visions 2030 plan.

⁸ The age of the system today ranges from 30 to 50 years. By 2030, the average age would increase to 55 to 75 years. If half the system were reconstructed over the next 25 years, the average age would drop to only 38 years ($\frac{1}{2} \times 12.5 + \frac{1}{2} \times (55+75)/2 = 38.8$ years).

APPENDIX B

BRIDGE REHABILITATION AND REPLACEMENT BUDGET UPDATE METHODOLOGY AND RESULTS

Summary

As part of the Transportation Finance Task Force effort, NYSDOT Region One staff furnished CDTC staff and the Task Force with information regarding bridge costs and conditions. CDTC staff used that data and supplemental data it obtained from the Region, Thruway and Counties to calculate the cost to repair all Capital District bridges to goal conditions of 20% deficient (poor). The table below shows the data relevant to the Task Force regarding bridge conditions and costs. Documentation of CDTC's calculations follow the table. Where there are multiple percent poor numbers in a cell in the table, they are percent poor by number of bridges followed by percent poor by deck area. If there is only one number it is for percent poor by the number of bridges. It should be noted that cost estimates by NYSDOT Region One that are used here do not accommodate the large inflation increases observed from 2001 to 2005.

Capital District Bridge Costs and Conditions

	Interstate	Non-Interstate State	Thruway	Local	Total	Annual Average
2006 % Poor*	30%, 65%	33%, 47%	24%	30%, 45%	-	-
2018 % Poor* (Current Program)	47%, 68%	31%, 36%	24%	39%, 37%	-	-
12-yr. Cost of Current Program	\$130.3M	\$207.1M	\$108M	\$55.6M	\$500.8M	\$41.7M
2018 % Poor* (Goal Oriented)	24%, 11%	20%, 20%	24%	20%, 20%	-	-
12-yr. Cost to Meet Goals	\$529.1M	\$341.1M	\$108M	\$91.1M	\$1069.3M	\$89.1M

* Where there are multiple percent poor numbers in a cell in the table, they are percent poor by number of bridges followed by percent poor by deck area. If there is only one number it is for percent poor by the number of bridges.

Local Bridge Expenditures

CDTC staff conducted interviews with many Capital District local government representatives years ago to estimate the amount of local funds spent on infrastructure repair. There are several reasons why this is an elusive number. So instead of regularly updating it directly, CDTC staff has inflated the number over the years to estimate what locals are spending in any given year. The perception of CDTC staff was that a negligible amount of the local funds were spent on bridges. However, that perception was called into question at the December 12, 2006 Transportation Finance Task Force meeting. So it was determined that CDTC staff would interview each of the four counties to see how much they spend on bridges, figuring that the vast majority of the funds would be spent by the counties. These funds would be shown here, and deducted from the amount to be spent on roads, in other areas of New Visions. These funds are

not funds used for match on federal-aid projects, but are for projects funded 100% with local funds. Results of the survey are as follows: Albany County spends \$1.1M per year, Rensselaer County spends about \$0.300M per year, Saratoga County spends about \$0.325M per year and Schenectady County spends about \$0.012M per year, for a total of about \$1.7M per year. This results in local expenditures over the twelve year period of about \$20.8M.

Local Bridge Calculations

According to the DOT handout at the October 17 meeting, 20 bridges would be repaired between 2006 and 2018, with total deck area of 160 k sq. ft. (supplemental information obtained from DOT) costing \$34.8M and resulting in percents poor of 39.2 (by number of bridges) and 37.4 (by deck area). Given that there are 348 local bridges and total 938 k sq. ft. bridge deck area (from 5/2/2006 meeting between CDTC & DOT), then 137 bridges would remain deficient, and 67 more would need to be repaired in order to have the number of bridges deficient (70 bridges) that results in 20% poor. Also, to reduce the deck area to 20% poor would require another 163 k sq. ft. to be repaired.

According to the DOT's Project Cost Estimation Procedure from January 1992, bridge repair costs relate to the cost of removal of the old bridge (in the case of replacement), deck area and certain features. It is assumed for this exercise that over as many bridges as are assumed to be repaired, the ratio of replacements to rehabilitations is the same for any group of local bridges, and that other features affecting the cost are not significant since they will average out. This leaves deck area as the only significant cost factor. From the BNAM runs, 20 bridges are to be repaired, with total deck area of 160 k sq. ft. at a cost of \$34.8M, yielding a cost per k sq. ft. of \$0.2175M. This gets added to the \$20.8M in local expenditures for a total of \$55.6M. This unit cost can be multiplied by the 163 k sq. ft. that need repair to improve the system to 20% poor, to yield an additional cost of \$35.5M. This gets added to the \$55.6M to result in a cost of **\$91.1M** to produce 20% poor (by number and by deck area) in the year 2018.

Thruway Calculations

New York State Thruway Authority staff informed CDTC staff that the current Thruway average bridge rating of about 5.25 would be maintained over the next ten years by investing \$14M per year in a group of bridges which includes those located within the Capital District. The percentage of those bridges in the Capital District is between 61% and 67%. Deck area is assumed to be the same on average for bridges in the Capital District and those outside the Capital District, in the Thruway program area. Thus, the funds needed for the bridges in the Capital District area would be about \$9M per year. It is assumed by CDTC staff that if these funds were spent for an additional two years, that conditions would continue to remain the same, making the cost \$108M for the twelve-year period ending in year 2018. Thruway personnel stated that these cost estimates were based on 2006 prices, which include the large inflationary increases from 2001 to 2006. The system currently has an average condition of 5.25 and 24% deficient (condition rating less than 5). It is assumed that if the average condition remains the same, that the percent poor would also. The 24% poor is above the goal of 20%. However,

enough assumptions were made to produce these numbers, that the 24% is sufficiently close to the goal.

Interstate Bridge Calculations

According to the DOT handout at the October 17 meeting, in order to achieve 24% poor by number of bridges and 11% poor by deck area in the year 2018, **\$529.1M** must be spent between 2006 and 2018, an average of \$44 M per year.⁹ These percentages, taken together, seem to meet a goal of 20% poor.

State-Owned Non-Interstate Bridges Calculations

Following the same procedure as that for local bridges, according to the DOT handout at the October 17 meeting, 52 bridges would be repaired between 2006 and 2018, with total deck area of 912 k sq. ft. (supplemental information obtained from DOT) costing \$207.1M and resulting in percents poor of 31.4 (by number of bridges) and 36.5 (by deck area). Given that there are 333 local bridges and total 3578 k sq. ft. bridge deck area (from 5/2/2006 meeting between CDTC & DOT), then 105 bridges would remain deficient, and 38 more would need to be repaired in order to have the number of bridges deficient (67 bridges) that results in 20% poor. Also, to reduce the deck area to 20% poor would require another 590 k sq. ft. to be repaired.

As stated above in the local bridge section, deck area is the only significant cost factor. From the data specified above, the cost per k sq. ft. can be calculated as \$0.2271M. This unit cost can be multiplied by the 590 k sq. ft. that need repair to improve the system to 20% poor, to yield an additional cost of \$134.0M. This gets added to the \$207.1M to result in a cost of **\$341.1M** to produce 20% poor (by number and by deck area) in the year 2018.

⁹ Independently, Working Group B produced a detailed bridge assessment for the regional expressway system for the 2004-2035 period. That resulted in an average investment required of \$45 M per year. The two approaches produced consistent results.

APPENDIX C

CONGESTION MANAGEMENT ACTIONS, COMMUNITY COMPATIBILITY AND ECONOMIC ACTIONS BUDGET UPDATE

METHODOLOGY AND RESULTS

Process

The New Vision 2030 plan remains consistent with prior New Visions plans. The plan maintains a modest budget (relative to most MPO plans) for discretionary actions to address congestion through intersection or linear widening or new roads; discretionary actions to relocate roadways to improve compatibility with surrounding neighborhoods; and discretionary actions to foster economic development in a manner and in locations consistent with CDTC principles. Unique to CDTC, the budget for community compatibility and economic development exceeds that for congestion relief.

Additionally, CDTC follows a unique practice of identifying specific projects in the plan only after detailed local planning is completed and only when financial plans are in place. CDTC's preference is to maintain a budget for project categories that candidate projects access through the well-articulated TIP process.

The updating of the previous budgets for these two New Visions budget categories reflects incorporation of new project cost estimates (for specific committed projects) and an adjustment to 2007 \$ values for annual budgets. Completed projects from prior versions of the table are shown in gray.

The overall results are shown on the following page.

Strategic CMS or Economic Highway and Bridge Actions

Project Title	Total Cost	Infra – structure Part	CMS ¹⁰ Need	Comm/Econ Need	Dedicated Funds	Private Funds	Notes
Previous TIP Commitments							
A209, Buckingham over NY 85							
A217, Schoolhouse Rd (Thruway, US 20)							
A230, I-787 Wards to I-90							
A231, Wolf/ASR							
A196, Route 7 over I-87	25.696	19.446	6.250				Infrastructure @75%
A235, Route 9/ Livingston							
A236, Route 5/ Jupiter							
A237, Everett Road							
A238 Everett/Central							
A240, Exit 3 to Airport	44.000	0	14.667	29.333	3.000		CMS @ 1/3, economic development @ 2/3
A242, Slingerlands Bypass	21.325	7.108	14.217				2/3 CMS
A275, Albany Shaker Road							
A289, Lincoln/Amtrak, Walker-Rapp	5.000			5.000			
A294/A372/A453, Watervliet Shaker Road	6.435	2.574	3.861				Infrastructure @40%/ private funds uncertain
A295, New Karner Road	16.525	6.610	9.915				Infrastructure @40%/ private funds not likely
A290,Selkirk Bypass	7.815			7.815			Previous TIP commitment
A296A372 Maxwell/ASR	6.598		6.598				
R36, I-90 Exit 8							
R105, Vandenburg Ave							
R111, Route 7 Troy-Brunswick							
R157, Route 9&20							
Crescent Road over I-87							
SA89, West Avenue							
SA95, US9/Crescent							
SA 98, Moe Road (turn lanes)							
SA101, Clifton Park Center Road median							
SA100, South Broadway							
SA103, Geyser, Northline							
SA108, Balltown Road	36.000	18.000	18.000				Infrastructure @ 50%
SA109, Glenridge Road	15.400	12.320	3.080				Infrastructure @ 80%
Round Lake Bypass/ Luther Forest	40.000	0	0	40.000	10.000		Approx. total
S93, Five Corners	5.200		5.200				
S94, Route 7/146	2.159		2.159				
S96, Balltown Road (see SA108)							
S97, Route 50/ Freeman's	16.074	6.430	9.644				Infrastructure @ 40%
S120, Glenridge Road (see SA109)							
S128, Exit 26							
S125, Route 7, I-890 to 5 Corners	12.193	7.316	4.877				Infrastructure @ 60%
All Demo and Future Projects							
I-90 Exit 8 Phase 2	100.000			100.000	100.000		Commitment conditional
Linkage recommendations to date	50.000	0	25.000	25.000		20.000	Approximation
Other economic development/ community highway actions	100.000			100.000			\$4M/yr x 25 years
Other future CMS actions	100.000		100.000				\$4M/yr x 25 years
TOTAL	610.420	79.804	223.468	307.148	113.000	20.000	
SUBTOTAL ON TIP	260.420	79.804	98.468	82.148	0	0.000	
SUBTOTAL NOT ON TIP	350.000	0	125.000	225.000	100.000	20.000	
Per year over 25 years	24.417	3.192	8.939	12.286	4.520	0.000	

¹⁰ CMS stands for Congestion Management System. CMS projects are consistent with CDTC Congestion Management Principles -- including addressing critical levels of congestion, integration with demand management strategies, compatibility with the community character and plans and expectation of proper land use management.

¹¹ Comm/Econ refers to projects that address economic development and community development purposes. Values in millions of 2007\$.

APPENDIX D

PUBLIC TRANSPORTATION BUDGET UPDATE

METHODOLOGY AND RESULTS

Process

The New Visions plan calls for routine investment to preserve and maintain the region's public transportation system. It also calls for continuous service improvement through deployment of Bus Rapid Transit, Intelligent Transportation System (ITS) features and careful service design. Service expansion (short of funding to allow for pursuit of "big initiatives") is anticipated to be modest. The NY5 BRT plans have come together since the original New Visions plan was adopted and stations are currently in design, queue jumpers funded, and initial vehicles already on the road.

Additionally, CDTA has assumed operation of Northway services in accord with CDTC's adopted private operators policy.

CDTA has been advancing a regional Transit Development Plan in recent years in conjunction with CDTC, and has adopted a five-year capital plan that shifts fleet replacements from a discrete even-twelve-year cycle to a continuous replacement process. In the first few years, early replacements and major rehabs to extend the life of vehicles will be used to spread out the replacement cycle.

The 25-year transit infrastructure budget was derived from CDTA's five-year capital plan, extended to 2030 to fully capture routine fleet replacement, facility maintenance and rehab, and BRT deployment.

Costs related to the integrated Human Services Transportation Plan are derived from that plan and historic funding levels for related fund sources shown in the TIP.

Transit Infrastructure
(Average cost per year, 2006-2030)

	Full Implementation
Urban fleet replacement / rehab	\$ 6.728 M
BRT fleet expansion	1.330 M
BRT stations, technology	2.133 M
STAR fleet replacement / expansion	0.651 M
Shuttle fleet replacement / expansion	0.515 M
Other special vehicles	0.450 M
Northway, other commuter replacement / expansion	0.901 M
Park and Ride lot construction	0.261 M
Saratoga Springs vehicle replacement / expansion	0.456 M
Facilities and other support capital	2.381 M
Human Service Agency vehicles	1.000 M
Total	\$16.807 M
Previous New Visions Total	\$11.491 M¹²

¹² New Visions 2021 / New Visions 2025 budget did not include Human Service Agency vehicle costs.

APPENDIX E
INTERMODAL FACILITY BUDGET UPDATE
METHODOLOGY AND RESULTS

Approach

CDTC's New Visions plan is unique in capturing the public cost of providing and improving regional intermodal facilities. These include three Amtrak stations and nearby intercity bus terminals, the Port of Albany, and the Albany International Airport (both passenger and cargo).

CDTC is also unusual in the extent to which intermodal needs are incorporated into its plans and programs. CDTC has been involved in funding critical initiatives at each of the Amtrak stations, the port and the airport. Access improvements to both the port and airport, an air cargo access road at the airport and other projects have been central to CDTC's mission.

The updated budgets reflect a continuation of previous commitments to growth and quality service at each of the public intermodal facilities. In addition, elements from the NYSDOT I-87 Corridor study (rail freight improvements, Amtrak improvements north of Schenectady), the High Speed Rail Task force (Livingston Ave. bridge and other track improvements) and CDTA's capital plan have been incorporated.

The Transportation Finance Task Force took care to include only those elements which could reasonably be expected to be financed over the planning horizon. For this reason, many of the elements of the High Speed Rail Task Force (including some that had previously been shown as funded in the Governor's High Speed Rail Initiative) are not included in the budget.

The product is a total budget exceeding \$40 M per year, comparable in scale to the nominal value in previous New Visions budgets.

Intermodal Facilities
(Average cost per year, 2006-2030)

	Full Implementation
Intercity passenger rail track, bridges	\$7.800 M
Intermodal passenger stations (Amtrak / bus)	3.500 M
Intercity rail vehicles	3.300 M
Kenwood intermodal yard improvement	0.300 M
Port of Albany	3.000 M
Albany International Airport	20.000 M
Other airports	3.900 M
Total	\$41.600 M
Previous New Visions Total	\$41.095 M

APPENDIX F

ESTIMATE OF REASONABLY ANTICIPATED REVENUES

The approach

A transportation plan is officially considered financially constrained and conforming when the federal government determines that it meets financial balancing regulations found in federal law (Titles 23 and 49 U.S.C.). These requirements hold that long range and short range transportation plans cannot propose to spend more money than reasonably-projected revenues can pay for, including considerations for constructing, operating, and maintaining planned projects. Not only is this balancing mandated but it is also sound fiscal policy.

Projecting transportation revenues is an imprecise science, at best. Projections that assume no increase beyond current authorization or appropriation levels at the federal, state or local level are necessarily incorrect. Funding has increased substantially over the past two decades.

Projections that assume that funding will be available for all desired expenditures are also necessarily incorrect; regional transportation plans in the 1970's made such projections and left metropolitan areas such as the Capital District without any meaningful guidance regarding difficult funding choices.

CDTC has attempted to avoid the pitfalls of either extreme. First, when the original New Visions Plan was developed, CDTC explicitly attempted to capture all public expenditures on the transportation system in the funding base. Growth in the total pot is much easier to anticipate than growth in only one area, such as federal transit funding.

Second, CDTC takes a broad perspective on revenue estimation. It believes that it is reasonable to anticipate that historic patterns of funding initiatives followed by funding lulls will continue. It believes that it is reasonable to anticipate that funding to cover constantly-increasing unit costs of delivering services and maintaining facilities will be (eventually) secured. It also believes that funding authorizers at local, state or federal levels will also include resources for modest system expansions or re-design. At various times, these modest expansions may be supported by "earmarks" or "member items", by categorical program initiatives or other means.

CDTC has adopted a steady progress policy in this regard. Steady progress implies work in all program categories in CDTC's New Visions plan regardless of funding level. That is, bicycle accommodations, land use planning, traveler information systems, BRT development and occasional highway widening are to be advanced along with system preservation efforts at all times and under all budgets. The *pace* must be adjusted to address immediate funding realities. This approach works well for CDTC, in that CDTC does not commit to a particular project in the plan until the funding for and priority of that particular project are assured.

Finally, CDTC has determined that it is not reasonable to anticipate that resources will be in place to implement "big ticket" initiatives – unless and until clear progress is made in securing a financial package for such initiatives.

Historic Patterns

It is tempting to believe that transportation funding is more static than dynamic, that funding levels have been roughly the same for years. The reality is quite different. Federal funding alone has increased substantially, beginning with passage of the ISTEA legislation in 1991. State funding has had its fluctuations, with boosts from bonds in 1983, 1988, 1993 and 2005. The State Dedicated Fund (SDF) was established in the 1990's, providing at first a strong dedicated revenue source for transportation; more recently, SDF funds have been more constrained both by inflation and debt service. The current draft TIP shows less state funding for capital projects than any TIP in over 15 years, despite the inclusion of the state-funded Round Lake Bypass in the current TIP. Thruway funding in the current TIP reflects increased tolls and the adopted six-year Thruway capital program that includes reconstructions of much of the Thruway system in the Capital District.

Rough estimates of annual capital funding levels¹³ at select points in recent history follow:

	1990¹⁴	1995¹⁵	2000¹⁶	2007¹⁷
Federal Highway	\$ 21 M	\$ 54 M	\$ 87 M	\$102 M
Federal Transit	\$ 9 M	\$ 10 M	\$ 11 M	\$ 17 M
State (incl. bond)	\$ 9 M	\$ 38 M	\$ 50 M	\$ 29 M
Thruway capital	\$ 1 M	\$ 1 M	\$ 12 M	\$ 25 M
Total TIP capital	\$ 40 M	\$ 103 M	\$ 160 M	\$ 173 M
Federal as pct.	75%	62%	61%	69%

The figures in this table (reflected in the “Historic Growth in Capital Funding” line of the figure on page 9 of this report) document the dynamic nature of transportation funding and the difficulty associated with projecting individual fund sources. The irregular but overall quite positive picture supports CDTC’s estimate of reasonably expected revenues – revenues that will grow roughly with or slightly above inflation.

¹³ Values for federal funds include state and local match.

¹⁴ Data taken from five-year average in CDTC’s 1989-94 TIP. Transit funds reduced from authorized levels in TIP to estimated actual appropriations (roughly 60%). Federal earmarks reflect approximate actual amounts. Totals include both CDTC urban and rural portions of the TIP.

¹⁵ Data taken from five-year average in CDTC’s 1992-97 TIP. Transit funds reduced from authorized levels in TIP to estimated actual appropriations (roughly 60%). Federal earmarks reflect approximate actual amounts.

¹⁶ Data taken from five-year average in CDTC’s 1999-04 TIP. Transit funds in TIP reflected estimated appropriations. Federal earmarks reflect approximate actual amounts.

¹⁷ Data taken from seven-year year (10/05-9/12) average in CDTC’s draft 2007-12 TIP dated 4/4/07. Transit funds reflect estimated appropriations. Federal earmarks reflect actual amounts.